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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,724	05/15/2001	Emma L Wood	124-852	9963
23117	7590	09/16/2004	EXAMINER	
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			YAMNITZKY, MARIE ROSE	
			ART UNIT	PAPER NUMBER
			1774	

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/831,724

Applicant(s)

WOOD ET AL.

Examiner

Marie R. Yamnitzky

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date rec'd 15 Jun 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. This Office action is in response to applicant's amendment filed June 15, 2004, which amends claims 1, 2, 4-8 and 11, and adds claim 12.

Claims 1-12 are pending.

2. The status identifier used for each of claims 9 and 10 as set forth in the June 15th amendment is not a proper status identifier. Effective July 30, 2003, "Previously Amended" was deleted from the list of acceptable status identifiers. The correct status identifier for present claims 9 and 10 appears to be "Previously Presented".

Because there is no claim 14, the examiner presumes that the amendment of claim 5 includes the deletion of "4" although strikethrough does not clearly show when "4" alone is lined through. The examiner also presumes that the period after "v" and the semicolon in the penultimate line of claim 1 have been deleted although the use of strikethrough in those instances could be misinterpreted.

Even if no further amendments are made to the claims, a response to this Office action should include a clean copy of all pending claims, with proper status identifiers, so that the status and text of all claims is clear for the record.

3. Applicant's amendment overcomes the following rejections:

(a) the rejection of claims 2-8 under 35 U.S.C. 112, 2nd paragraph;

(b) the rejection of claims 1, 2, 4, 6 and 9-11 as anticipated by JP 9-289081; and

(c) the rejection of claims 2-8 as unpatentable over JP 9-289081 further in view of Zhang et al. (WO 97/32452) or Hung et al. (US 5,677,572).

4. Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The application as originally filed provides insufficient support for the negative limitation prohibiting the optional electrode modifying layer(s) from providing any of the functions of electron transportation, hole transportation or light emission. While the original disclosure teaches that electrode modifying layers are optional, there is no teaching that these optional layers, if present, cannot or do not provide electron transport, hole transport or light emitting functions.

Further, as taught on page 6 of the specification, the electrode modifying layer that is closest to the anode assists in hole injection, and the electrode modifying layer that is closest to the cathode assists in electron injection. It is not clear that these layers, while assisting in electron injection or hole injection, would not provide a function of electron transport or hole transport, respectively.

5. Claims 1-4, 6 and 9-11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (US 5,281,489) in view of Boyer et al. (US 5,189,029) or Czerney et al. (*Applied*

Fluorescence Technology, June 1989, pp. 13-14) or Czerney et al. (DD 265266 A1) for reasons of record in Paper No. 5.

6. Claims 5, 7 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (US 5,281,489) in view of Boyer et al. (US 5,189,029) or Czerney et al. (*Applied Fluorescence Technology*, June 1989, pp. 13-14) or Czerney et al. (DD 265266 A1), further in view of Zhang et al. (WO 97/32452) and Hung et al. (US 5,677,572) for reasons of record in Paper No. 5.

7. Applicant's arguments filed June 15, 2004 have been fully considered but they are not persuasive with respect to the rejections based on the patent to Mori et al. in view of additional references.

Applicant argues that there are no teachings in the prior art that suggest that it would be advantageous to employ applicant's boron compounds in a single layer device. Applicant argues that use of applicant's boron compounds leads to improved efficiency in a single layer device. Applicant argues that the examiner has not explained why one of skill in the art would expect improved efficiency in a single layer device by selecting applicant's boron compounds.

Applicant further argues that while Mori could be combined with any art relating to laser dyes, the combination is not obvious unless the prior art suggests the desirability of the combination.

With respect to the examiner's comments in the previous Office action regarding the need for comparative data, applicant argues that the presentation of comparative data is not necessary because the obviousness rejection is not justified because no motivation is given to combine the cited prior art references.

The examiner maintains the position that the motivation to combine the references lies in Mori's teachings that laser dyes are suitable for use as fluorescent luminescent agents in a luminescent layer. Based on Mori's teachings, one of ordinary skill in the art would look to known laser dyes. Boyer et al. and Czerney et al. disclose laser dyes. If Mori's disclosure could only be relied upon as teaching the desirability of the specific fluorescent luminescent agents disclosed as examples by Mori et al., than Mori's teaching of the suitability of laser dyes in general would be meaningless.

As taught on page 8 of the present invention, higher efficiency, higher brightness and lower cost of manufacture are several possible advantages which may be exhibited by devices of the present invention. Mori's goals include providing a device having high luminescence efficiency and brightness, which can be efficiently produced at low cost (e.g. see Mori's abstract). While the prior art does not teach that by using the laser dyes disclosed by Boyer et al. or Czerney et al. in Mori's device, efficiency would be improved compared to using other laser dyes suggested by Mori et al., Mori et al. provide guidance for selecting materials to be used in combination in the luminescent layer in order to optimize efficiency (e.g. see c. 25, l. 33-41). Applicant has not demonstrated that efficiency is necessarily improved merely by using a boron compound as required by the present claims instead of other known fluorescent luminescent

agents such as other known laser dyes. While the present claims require materials having particular functions to be used in combination in a single layer, the only material which is limited to a specific chemical structure is the boron compound. In view of Mori's teachings, the efficiency of the device is affected by the relative properties of the materials providing the three functions specified in the present claims, not just by the chemical structure of the fluorescent luminescent agent.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

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The current fax number for Art Unit 1774 is (703) 872-9306 for all official faxes.
(Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY

September 10, 2004

Marie R. Yamnitzky

**MARIE YAMNITZKY
PRIMARY EXAMINER**

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